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AUTHOR Krauss, Beatrice J.
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ABSTRACT

Appropriate software can turn the microcomputer from the dumb box into a teaching tool. One resource for finding appropriate software is the organization Edunet. It allows the user to access the mainframe of 18 major universities and has developed a communications network with 130 colleges. It also handles billing, does periodic software evaluations, has consultants who keep track of developments at member colleges, runs workshops, puts out a newsletter, and passes on requests for specific types of software by means of an electronic bulletin board. A second resource is the Blue Book series, which lists available software and hardware. Each entry contains a short description, a recommended age for software users, the supplier's address and phone number, and the price. These resources, together, show several of the uses of computers in the classroom: understanding through demonstrations and simulation, and programmed presentation of material. Other aids for the communication arts include statistics, word processing, and typesetting graphics programs. A more recent development in software is human speech synthesis. One program, Software Automatic Mouth, can translate text to phonemes or phonemes to text. One should be cautioned, however, never to buy software that has neither a backup copy nor the ability to be copied. It is also helpful to examine documentation. No longer are computers giant behemoths. As these resources suggest, they may be useful teaching tools. (HOD)

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Developing Computer Software for Use In the Speech/Communications Classroom

Beatrice J. Krauss

College of New Rochelle

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Beatrice J. Krauss
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Microcomputers--Apples, IBM's, TRS-80's, Commodores, Ataris--can be easily pulled into a classroom. They are portable with clean lines. They are desk-top size. Their display can be textual on a printer, visual on a T.V. monitor, or auditory through a speaker with use of a speech synthesizer or musical without one.

Once they are in the classroom, how will they benefit us? Creative Computing magazine argues that microcomputers will be faster but not smarter than the teachers. Do we always want to go faster? For what purposes? For what other purposes is reflection and deliberation more in order?

Educom/Edunet, an international higher education computing network based in Princeton, New Jersey, points out that the humanistic sciences and humanities, in particular, have lagged far behind elementary, secondary and science educators in the development of software for classroom use. Some of the reasons are historical, some are not. Universities were the stronghold of the giant, expensive computers dveloped by mathematicians and physicists. With apparent, but limited access to these behemoths, why would humanities and humanistic science educators turn to microcomputers? A more cogent barrier has to do with the usefulness of computers as teaching tools for the various disciplines. The humanities concern the study of the highest products of man. Joseph Weizenbaum, an MIT professor studying

computer simulation of natural language, notes that natural language, a human product of especial interest to this group, is only understood in contextual frameworks, that "even these (contextual frameworks) can be shared by people to only a limited extent" and, hence, a computer, because of its lack of idiosyncratic complexity in experiencing, is a flawed model of human wisdom or understanding. Computers must take the information given them and deal with it logically and clearly. Through selective attention, humans can alter their inputs and are not constrained to be logical.

The first barrier to development of software has fallen. With a package of microcomputer, modem and phone line, one can either use a microcomputer as a terminal to a mainframe or as a self contained unit. The second barrier can be handled with a kind of honesty toward the student that makes the student aware of not only what is <u>in</u> the program but what was left <u>out</u>. Perhaps the latter point can be illustrated with Weizenbaum's own widely quoted ELIZA-DOCTOR program, a simulation of a Rogerian psychotherapist:

Client: Men are all alike
DOCTOR: IN WHAT WAY
Client: They're always bugging us about something or other
DOCTOR: CAN YOU THINK OF A SPECIFIC EXAMPLE
Client: Well, my boyfriend made me come here
DOCTOR: YOUR BOYFRIEND MADE YOU COME HERE
Client: He says I'm depressed much of the time
DOCTOR: I AM SORRY TO HEAR YOU ARE DEPRESSED
Client: It's true. I am unhappy.
DOCTOR: DO YOU THINK COMING HERE WILL HELP YOU NOT TO BE UNHAPPY
Client: I need some help, that much seems certain
DOCTOR: WHAT WOULD IT MEAN TO YOU IF YOU GOT SOME HELP
Client: Perhaps I could learn to get along with my mother
DOCTOR: TELL ME MORE ABOUT YOUR FAMILY

Client: My mother takes care of me
DOCTOR: WHO ELSE IN YOUR FAMILY TAKES CARE OF YOU
Client: My father
DOCTOR: YOUR FATHER
Client: You are like my father in some ways
DOCTOR: WHAT RESEMBLANCE DO YOU SEE
Client: You are not very aggressive but I think you don't want me to notice that
DOCTOR: WHAT MAKES YOU THINK I AM NOT VERY AGGRESSIVE
Client: You don't argue with me
DOCTOR: WHY DO YOU THINK I DON'T ARGUE WITH YOU
Client: You are afraid of me
DOCTOR: DOES IT PLEASE YOU TO BELIEVE I AM AFRAID OF YOU
Client: My father is afraid of everybody
DOCTOR: WHAT ELSE COMES TO MIND WHEN YOU THINK OF YOUR FATHER
Client: Bullies
DOCTOR: DOES THAT HAVE ANYTHING TO DO WITH THE FACT THAT YOUR BOYFRIEND MADE YOU COME HERE

(Weizenbaum, 1976, pp 3-4)

ELIZA-DOCTOR soon became a fad. There were serious suggestions of computer therapists. Dr. Weizenbaum was appalled. He had programmed a technique of mirroring, but not genuineness, warmth or empathy.

It is the program, the software, that turns the microcomputer from the dumb box into the teaching tool. Where can we find appropriate software, what software is available and how can we evaluate it?

The first resource I will mention is an organization that has evolved to deal with some of the difficulties the higher education user will encounter. Many of our areas are specialized and technical. It is unlikely mass market software would be developed for it. Most software suppliers also do not circulate "samples"; it is difficult to tell if mass market software is age-appropriate for college students. The organization, Edunet (P.O. Box 364, Princeton, NJ), allows a user to access the mainframes of 18 major universities in the United States and one in

Sweden. In addition, it has developed a communications network with 130 colleges. Edunet handles billing, does periodic software evaluation, has consultants who keep track of developments at member colleges, runs workshops, puts out a newsletter and can post requests for specific types of software on an electronic bulletin board. I tested the consultant service with a request for "negotiation in the classroom." I was rewarded with documentation--a sample run of Carnegie-Mellon's Critical Incidents in Education:22 teacher-student conflict simulations. If I were to pursue this program, Edunet would help me obtain an account at Carnegie-Mellon, and log on. Edunet yearly membership fees are based on college size. Member colleges are then billed centrally for actual usage time. Edunet provides all members with compatible terminal software. The consultant mentioned several other programs in human communication:

the ELIZA program, Minnesota
Cultural Differences, available on a PLATO system

From a follow-up catalog, "The Resource Directory," I found

DONMAR II--a media simulation game that allows two players to plan and conduct an advertising campaign (North Carolina)

MINI-MANAGEMENT--a simulation of the managerial environment of a large nationwide firm (Carnegie-Mellon)

ELECTION SIMULATION PROGRAM--players vary campaign investments and issue positions (Minnesota)

METRO-APEX--a large complex simulation of urban government in which participants play the roles of elite decision-makers such as news media (Cornell)

There were a few others of interest as well.

The second resource is the Blue Book series published by WIDL Video Publication, 5245 West Diversey, Chicago, Illinois.

The Blue Book is only for the Apple II. Next year the Blue Book "series" will expand to cover IBM, Commodore and Atari. The Blue Books list available software and hardware for microcomputers. Each entry contains a short description, a recommended age for software users, the supplier's address and phone, and the price. The Blue Books are updated annually. No phone lines, modems, etc. are necessary here. A disk drive will do. Although the Blue Books are divided into sections by interest area, the relevant programs were scattered through Communications (in with the modems and cables), Language Arts and Simulations. According to the Blue Book, next year Random House will publish a 13-lesson college level set of disks on Communication Theory (lessons: process, language, effect), Oral Communication (lessons: process, what we say and how we say it, what we do and how we do it, total speech organization, where to start, total speech building, speech to inform, speech to stimulate, speech to persuade) and Written Communication (lessons: writing as modern communication, medium and the message). Among the other programs relevant to speech communications were,

Network--Two players as heads of TV networks bid for shows, schedule, adjust to ratings, dump losers (Edu-Ware Services)

President Elect--accurate historical simulations of campaigns in which you allocate state, regional and national advertising (Strategic Simulations)

Effective Decision-Making--ten lessons on organization practices and managerial control (BLS Inc.)

These resources, together, show several of the uses of computers in the classroom: understanding through demonstration and simulation, programmed presentation of material. There are

at least two others: computers as tools for research and computers as straightforward tools, doing what they do best, finishing tedious work quickly. These other functions are often thought of as Utilities. For Communication Arts, they would include statistics, word-processing and type-setting graphics programs. These have been extensively developed and reviewed (Creative Computing, June 1983, 9, 6, reviews 21 word processing and printing programs). Too often it is forgotten that Simulations can be used for research as well. Record keeping has to be built into the program to answer such questions as "Are the players who react hastily more effective than those who deliberate?" The research potential of simulations is often underused.

I have saved an exciting development for last. It could be classed as an Utility or a Simulation: human speech synthesis. Two programs, under $300, have received excellent reviews. The S.A.M.(Software Automatic Mouth) for the Apple II or Atari can translate text to phonemes or phonemes to text. It speaks with a slight lisp; its demonstration program delivers soliloquies; its intonation and accent can be altered; it does translations. The Echo program (Apple, Atari, IBM, TRS-80 III) takes more work to program but has even greater potential. Both programs were reviewed by programmers and speech therapists.(Favaro, 1983) Their use is limited by your imagination. The September 1982 issue of Popular Electronics tells you how to build one . (Carlstrom, 1982)

I hope I have opened your eyes (ears) to some possibilities. I will caution you from experience to never buy software that

has neither a back-up copy nor the ability to be copied. The manufacturer ought to offer the service of providing needed additional copies. If you can, examine documentation--the manual, a printout of a sample run--before you buy. Develop some sort of user's information exchange network.

I often keep both complex and simple copies of the same program. Some times the professional programs become so complex that they mystify rather than inform the student. It is helpful for the student to be able to LIST the innards of a simple program and see the factors that have been discussed in class quantified and recognizable on a program line. Hence, a catchphrase among programmers, good programs are full of "REMARK" statements, statements that let the user know what the program is doing. This helps to guard against the dangers Weizenbaum saw, that the technologically ignorant would not know what was IN or OUT of a program.

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Random House, 400 Hahn Rd., Westminster, MD 21157

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Addendum

Conduit is an organization similar to Educom. Its address is: M310 Oakdale Hall, The University of Iowa, P.O. Box C, Oakdale, IA, 52319